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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/923,720	08/06/2001	Frank Pietzschmann	2000P15141	1125

7590

10/14/2003

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EXAMINER

CHAN, EMILY Y

ART UNIT

PAPER NUMBER

2829

DATE MAILED: 10/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/923,720	Applicant(s) PIETZSCHMANN, FRANK	
	Examiner Emily Y Chan	Art Unit 2829	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-16 and 27 is/are pending in the application.
- 4a) Of the above claim(s) 17-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-16 and 27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 31 July 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s) _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Amended claims 1-2, 4-16 and new claims 27 are presented for examination.

Claim 3 is cancelled.

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the feature that the first set of global actuators to compensate for global tilting of the wafer or the chuck recited in claim 27 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2 and 4-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hagihara '192 in view of Itoyama ('053).

With respect to claim 1, Hagihara '192 discloses a test apparatus or a probe card used in probing apparatus (see Fig 2 below) for testing the electrical characteristics of a semiconductor wafer as claimed, comprising:

a chuck (13)(see col. 5, line 29) for holding a wafer (12) that has at least one semiconductor integrated circuit (semiconductor chips) with a group of contact areas (12b)(see col.5, line 20) that define a wafer surface profile,

a test head (22) that is configured opposite the chuck (13)

a probe card (32) that is configured on the test head (22) and that has contact (37) (see col. 7 lines 4-5) for making contact with the contact are ((12a, 12b) of the integrated circuit (semiconductor substrate 12) (see Col. 5, lines 48-49);

at least three actuators (pushing mechanism 38 and actuators blocks 39a) that are configured on the probe card (32) for aligning the test surface profile parallel with the wafer surface profile (see Col. 8, lines 8-14) prior to the test surface profile (37) contacting the wafer surface profile (12a) and for changing (pushing) a distance between a printed wiring board (48) and contacts of the probe card (32) in direction substantially orthogonal to wafer surface profile (see col. 5, lines 47-49 and Col. 6, lines 60-65).

Hagihara '(192) does not teaches that his test head (22) includes a performance board.

Itoyama('053) disclose a probe apparatus (see Fig 3) and particularly teaches a test head (26) that includes a performance board (31).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Itoyama ('053) ' performance board into Hagihara '(192) 'test head for the purpose of enhancing test precision as disclosed by Itoyama ('053) (see Col. 2, line 17).

3. With respect to claims 2 and 4, the rejection ground is the same as stated in the page 3 of previous office action.

4. With respect to claim 5, Hagihara '(192) teaches that his probe card (32) includes a substrate (see Fig 5) and his actuators (39a) are configured in the probe card (32) and are connected to the contacts of probe card (32) and to the substrate (see Fig. 2).

5. With respect to claims 6-16, the rejection ground is the same as stated in the pages 3-7 of previous office action.

6. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hagihara '(192) in view of Itoyama ('053) as applied to claim 1 above, and further in view of Kobayashi et al (656).

Hagihara '(192) teaches that their at least three actuators include a first set of global actuators (39a). Hagihara '(192) also teaches that their at least three actuators include a second set of dedicated actuators (39a), one dedicated actuator for each of the contacts on the probe card (32), to individually move the associated contact related to the probe card (32), (see Col. 2, lines 62-66), wherein the dedicated actuators (39a) are configured on the probe card (32) (see Fig 2) for aligning the contacts (37) of the probe card (32) parallel with the contact areas (12a, 12b) of the integrated circuit (12) before the contacts of the probe card (32) contacts the contact areas on the integrated circuit (see Col. 8, lines 1-22).

Hagihara '(192) in view of Itoyama ('053) do not teach that their first set of global actuators (39a) operate to **"compensate for global tilting of the wafer or the chuck"**.

Kobayashi et al (656) disclose a probe for examining certain electric characteristics of an object of examination and expressly teach a controller to "compensate for global tilting of the wafer or the chuck" (see abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Kobayashi et al (656)'s tilting of the wafer or the chuck into Hagihara '(192)'align mechanism for the purpose of ensuring a test to be performed highly reliably as disclosed by Kobayashi et al (656)(see Col. 2, line 62-63).

Response to Amendment

7. Applicant's arguments filed 7-31-03 for claims 1 and 27 have been fully considered but they are not persuasive. Applicant has argued:

(1) for amended independent claim 1, that the reference Hagihara '(192) only adjusts alignment "to permit the probe card to be positioned in substantially a horizontal plane" prior to contact with the to-be-tested semiconductor wafer and not "**parallel with the wafer surface profile**";

(2) Hagihara '(192) does not show at least three actuators that are configured on the probe card for aligning the test surface profile parallel with the wafer surface profile prior to contact, and applicant also has argued:

(3) new claim 27 includes " global actuators to compensate for global tilting of the wafer or the chuck" which Hagihara '(192) does not have.

With respect to argument (1), The examiner disagrees applicant' assertion about this issue and points to the following section of Hagihara '(192) as teaching the claimed subject matter. From Fig. 2, Hagihara '(192) teaches that the actuators (39a) are

configured on the probe card (32) for aligning the test surface profile (area underneath of the probe contact (37)) parallel with the wafer surface profile (12a, 12b).

With respect to argument (2), The examiner disagrees applicant's assertion about this issue and points to the following section of Hagihara '(192) as teaching the claimed subject matter. Hagihara '(192) does show at least three actuators (39a) that are configured on the probe card (32) for aligning the test surface profile parallel with the wafer surface profile prior to contact (see col. 8, lines 9-22 "It follows that the semiconductor wafer 12 is pushed (aligned) by the plural blocks 39a which are movable independently... As a result, the bump electrodes 37 acting as contact elements can be brought into contact without fail with the electrode pads 12a of the semiconductor wafer 12"). Hagihara '(192) clearly shows that prior to the test surface profile (probe contact (37) contacting the wafer surface profile (12a), these at least three actuators (39a) align the test surface profile (area underneath of the probe contact (37)) independently parallel with the wafer surface profile (12a).

With respect to argument (3), this feature to compensate for global tilting of the wafer or the chuck was taught by Kobayashi et al (656) (see paragraph 8 above).

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

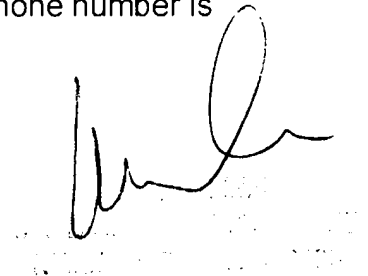
TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emily Y Chan whose telephone number is 7033056123. The examiner can normally be reached on 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cuneo Kammie can be reached on 7033081233. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 7022056123.

ec

A handwritten signature in black ink, appearing to be 'Emily Y Chan', is located in the bottom right corner of the page. The signature is written in a cursive, flowing style.